

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
3 June 2004 (03.06.2004)

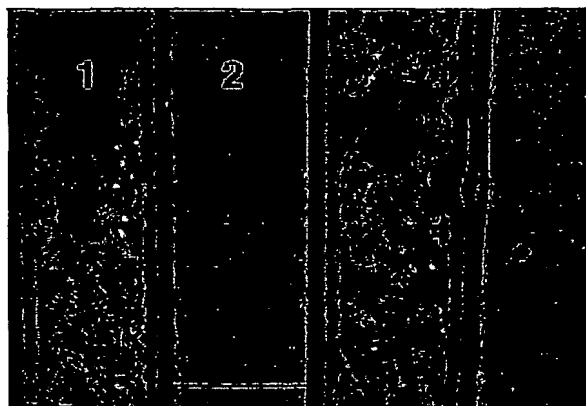
PCT

(10) International Publication Number
WO 2004/047166 A3

- (51) International Patent Classification⁷: **G03F 7/039**, H01L 23/00
- (21) International Application Number: PCT/US2003/036542
- (22) International Filing Date: 14 November 2003 (14.11.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/426,738 15 November 2002 (15.11.2002) US
- (71) Applicant (for all designated States except US): **E.I. DU PONT DE NEMOURS AND COMPANY** [US/US]; 1007 Market Street, Wilmington, DE 19898 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **KIM, Young, H.** [KR/US]; 406 Bartram Lane West, Hockessin, DE 19707 (US).
- (74) Agent: **SIEGELL, Barbara, C.**; E.I. Dupont de Nemours and Company, Legal Patent Records Center, 4417 Lancaster Pike, Wilmington, DE 19805 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 15 July 2004

[Continued on next page]

(54) Title: PROCESS FOR USING PROTECTIVE LAYERS IN THE FABRICATION OF ELECTRONIC DEVICES



(57) Abstract: This invention relates to novel processes comprising a protective polymer layer in the fabrication of electronic devices using thick film pastes. The protective polymer layer is fabricated from materials which are insoluble after irradiation in the ester-type solvents contained in the thick film paste. By appropriate selection of protective film polymers, the protective film can be compatible with the thick film paste.

BEST AVAILABLE COPY

WO 2004/047166 A3

3
WO 2004/047166 A3



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

Received 05 MAY 2005

International Application No.

PCT/US03/36542

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G03F7/039 H01L23/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G03F H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 060 207 A (N. SHIDA ET AL.) 9 May 2000 (2000-05-09) column 34, line 37 - line 42 column 204; example II.204	1-5
X	EP 0 936 504 A (DAICEL CHEMICAL INDUSTRIES, LTD.) 18 August 1999 (1999-08-18) page 14; example I.1 claim 10	1-5
X	US 4 985 332 A (A.G. ANDERSON ET AL.) 15 January 1991 (1991-01-15) column 1, line 25 - line 30 column 10; example 1	1-5

--/--

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

15 April 2004

Date of mailing of the international search report

21/05/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Dupart, J.-M.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/36542

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 410 748 B1 (N. SHIDA ET AL.) 25 June 2002 (2002-06-25) column 43, line 6 - line 10 column 73; example 14	1-5
A	US 2002/001720 A1 (R. S. CLOUGH) 3 January 2002 (2002-01-03) page 2, paragraph 18 claims	1-5
A	US 4 373 019 A (Y. WATANABE ET AL.) 8 February 1983 (1983-02-08) figure 6 column 7, line 8 - line 14	1-5

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/36542

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6060207	A	09-05-2000	DE 19525221 A1 JP 3417733 B2 JP 8082925 A KR 195595 B1	25-01-1996 16-06-2003 26-03-1996 15-06-1999
EP 0936504	A	18-08-1999	JP 11231541 A EP 1376233 A2 EP 0936504 A1	27-08-1999 02-01-2004 18-08-1999
US 4985332	A	15-01-1991	WO 9115807 A1 US 5219711 A	17-10-1991 15-06-1993
US 6410748	B1	25-06-2002	JP 11171835 A US 6291129 B1	29-06-1999 18-09-2001
US 2002001720	A1	03-01-2002	US 6294270 B1 US 2002114969 A1 AU 6254199 A CN 1337975 T EP 1141073 A1 JP 2003504425 T WO 0039189 A1	25-09-2001 22-08-2002 31-07-2000 27-02-2002 10-10-2001 04-02-2003 06-07-2000
US 4373019	A	08-02-1983	JP 55034440 A JP 59015394 B DE 2965661 D1 EP 0016231 A1 WO 8000520 A1	11-03-1980 09-04-1984 21-07-1983 01-10-1980 20-03-1980